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| **Chi Square Test: Tutorial** |
| 1. The following data give the number of air-craft accidents that occurred the various days of a week.  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Days | Mon | Tue | Wed | Thu | Fri | Sat | | No. of accidents | 15 | 19 | 13 | 12 | 16 | 15 |   Test whether the accidents are uniformly distributed over the week.  [Ans:  ,  is accepted at 5% LOS]   1. 12 dice were thrown 4096 times and a throw of 6 was considered a success. The observed frequencies were as given below:  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | No. of successes | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | Frequency | 447 | 1145 | 1180 | 796 | 380 | 115 | 25 | 8 |   Test whether the dice were unbiased.  [Ans:  ,  is accepted at 5% LOS]   1. The following table shows the distribution of digits in the numbers chosen at random from a telephone directory:  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Digit | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | | Frequency | 1026 | 1107 | 997 | 966 | 1075 | 933 | 1107 | 972 | 964 | 853 | 10000 |   Test whether the digits may be taken to occur equally frequently in the directory.  [Ans:  ,  is rejected at 5% LOS]   1. The following data show defective articles produced by 4 machines:  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Machine | A | B | C | D | | Production Time | 1 | 1 | 2 | 3 | | No. of defectives | 12 | 30 | 63 | 98 |   Do the figures indicate a significant difference in the performance of the machines?  [Ans:  ,  is rejected at 5% LOS]   1. A total number of 3759 individuals were interviewed in a public opinion survey on a political proposal. Of them, 1872 were men and the rest women. A total of 2257 individuals were in a favour of the proposal and 917 were opposed to it. A total of 243 men were undecided and 442 women were opposed to the proposal. Do you justify or contradict the hypothesis that there is no association between sex and attitude?   [Ans:  ,  is rejected at 5% LOS]   1. The following data represent the monthly sales(in Rs.) of a certain retail store in a leap year. Examine if there is any seasonality in the sales?   6100,5600,6350,6050,6250,6200,6300,6250,5800,6000,6150,6150  [Ans:  ,  is rejected at 5% LOS]   1. The following table gives for a sample of married women, the level of education and the marriage adjustment score:  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Level of education | Marriage adjustment | | | | | | Very low | low | high | Very high | total | | College | 24 | 97 | 62 | 58 | 241 | | High school | 22 | 28 | 30 | 41 | 121 | | Middle school | 32 | 10 | 11 | 20 | 73 | | Total | 78 | 135 | 103 | 119 | 435 |     Can you conclude from above data that the higher the level of education the greater is the degree of adjustment in marriage?  [Ans:  ,  is rejected at 5% LOS] |